

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

BACKGROUND OF THE INVENTION

Shavers come mainly in two categories. Wet, manual shaver with blades using some kind of a shaving cream or electric shavers. Electric shavers have either a round shaving head where the cutting blade is rotated, straight or angled or the flat, oscillating, vibrating type.

The electric razors all use electricity, AC or DC with rechargeable batteries with limited charge / discharge cycle and some uses alkaline throw away batteries,

Life span of most shaver is reduced due to water incursion to the electric area, motor gets damp or wet, or rechargeable batteries are not easily replaceable and it gets disposed.

Cleaning hair particles out of the razor screen area need brushing, air blowing and in some newer shavers the motor has a better insulation from water, allowing water cleaning of detachable shaver head.

Shavers are not truly wet and dry types, they are wet or dry.

My new invention has a solution for these type of shortcomings.

This Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control is a true wet and dry shaver.

My new invention has no electric parts, 100 % waterproof, it is submergible, it uses no electricity.

It uses free parasite power source (water pressure), no batteries need to be recharged or exchanged.

This new **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control** is a true 100 % wet or dry shaver.

Built in water nozzle flushes out hair particles solving prior arts' water intrusion problems into the motor, driving area.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

DESCRIPTION OF PRIOR ART

United States Patent 4,549,352 Ochiai , et al. October 29, 1985 Washable electric shaver.

A washable electric shaver comprising a water-tight housing having a drive motor therein and a switch.

This invention is directed to a dry shaving apparatus with a housing in which an electric drive mechanism

United States Patent 5,299,354 Metcalf , et al. April 5, 1994 Oscillating shaver

An oscillating wet shave razor with a battery powered motor rotating an eccentric element within the head portion of the razor handle to generate an oscillating vibration to the razor blade cartridge.

United States Patent 5,544,415 Huang August 13, 1996 Water-proof and washable electric razor.

A structure of an electric water-proof detachable and washable razor has a unit of detaching blades and a unit of water-proof shells for receiving a battery, a motor, a switch.

United States Patent 5,649,556 Braun July 22, 1997 Cleaning device for cleaning the shaving head of a dry shaving apparatus. The invention is directed to a cleaning device for cleaning the shaving head of a dry shaving apparatus with a cradle structure adapted to receive the shaving head , a cleaning fluid container holding a cleaning fluid, as well as a device adapted to be driven by a motor for feeding the cleaning fluid. .

United States Patent 5,933,962 by Labarbara August 10, 1999 Oscillating razor is a detachable oscillating unit is provided which converts a conventional wet shave razor, such as a disposable razor, into an oscillating wet shave razor. United States Patent 6,497,043 by Jacobsen December 24, 2002 Intelligent shaver, a shaving device with one or more shaving blades. Sensors are attached to (or near) the blades which produce a shaving signal. A processor or intelligent analysis unit then receives the shaving signal and determines what shaving changes should be made.

United States Patent 6,493,941 Wong December 17, 2002 Motor-driven razor uses a foil-type electric razor includes with a coaxial motor and cutter.

United States Patent 6,357,118 Eichhorn , et al. March 19, 2002 Electric razor.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Current U.S. Class: 134/92; 134/111; 134/166R; 134/186,

Field of Search: 134/111,155,186,92,184,166 C,166 R,201,62,116,135, 30/45,44,210,537,DIG. 1

References Cited [Referenced By]: 30/45; 30/44

U.S. Patent Documents

4,549,352 Ochiai , et al. October 29, 1985

4819330 Apr., 1989 Fenn et al.

5007169 Apr., 1991 Motta.

5046249 Sep., 1991 Kawara et al. 30/45.

5214851 Jun., 1993 Althaus.

5,299,354 Metcalf , et al. April 5, 1994

5,544,415 Huang August 13, 1996

5,649,556 Braun July 22, 1997

5,933,962 by Labarbara August 10, 1999

6,357,118 Eichhorn , et al. March 19, 2002

6,497,043 by Jacobsen December 24, 2002

Patent 6,493,941 Wong December 17, 2002

Intern'l Class: B08B 009/00, B26B 021/38

Foreign Patent Documents

911412 Jul., 1946 FR 30/45.

1 841 789 Nov., 1961 DE.

1 406 830 Nov., 1972 GB.

36 10 736 Oct., 1987 DE.

41 28 218 Aug., 1992 DE.

43 03 972 Oct., 1993 DE.

2 318 722 May, 1998 GB.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

SUMMARY OF THE INVENTION

This invention has a unique, new way to drive the “electric” type shavers, **miniature water turbine**.

The **water pressure driven shaver** uses the water from the faucet in the bathroom or the shower outlet with a diverter to rotate the turbine, remains clean and reusable. This shaving device uses no electricity, environmental friendly, uses no alkaline or rechargeable batteries, only water in the home or in a hotel’s water system. Water volume adjustment is **the shaver’s speed control**, allows the user to adjust the shaver’s speed.

The **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control** is a new way to power up the “electric shavers”, most prior art types are adaptable.

It saves money, water pressure in the city water system is used as a free “parasite” power source.

This invention solves the long cleaning problem by allowing a built in water jet to rinse out the shaver from inside without destroying any component. **It is waterproof, it is submergible.**

Vertical, worm gear type turbine driven shaft is used in nose hair trimmer version of this invention, with clean out water nozzle and a version of the apparatus is **water pressure driven massager invention..**

In respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or as it is illustrated in the drawings.

.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

OBJECTS OF THE INVENTION

The main object of the invention is to create a new line of shavers by designing a water proof

Wet and Dry shaver with an easy clean out which is adaptable to most prior art rotating or oscillating electric shavers with or without beard trimmer and nose hair trimmer. Provide a new economical way to drive the “electric “ type shavers by replacing electricity as the energy source with water pressure.

By using a small water turbine which is adaptable to most electric razors, this **Water Pressure Driven Wet and Dry Shaver** is a 100 % water proof, it is submergible.

The other object is to provide a clean out for the shaver by using a built in water jet, since there are no electric parts in the invention, no parts can be damaged in the apparatus by water.

By pressing the built in nozzle valve, the water flushes out all hair particles.

The water valve acts as a **Speed Control** by controlling the water flow, the user can adjust for the most desirable shaver speed.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Brief description of the invention

This invention has a unique, new way to drive the “electric” type shavers, **miniature water turbine**.

The **water pressure driven shaver** uses the water from the faucet in the bathroom or the shower outlet with a diverter to rotate the turbine.

The **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean-out and Seed control** is a new way to shave, economical, waterproof, it has a water clean out built in nozzle flushing away hair cuttings.

On **page 1** of the drawing FIG. 1 shows a shaver with an angled rotating blade assembly.

Water comes from the faucet from the diverter on FIG. 4. switch (62) controls the water flow and turbine (29) speed, and this rotation drives the round shaver blade(9). Normally closed push button valve(14) when activated the water flushes out the hair particles with nozzle(10), derbies flow out at opening(7) and opening (4). Hook (23) provides convenient hanging option if shaver is not in use.

Page 7 FIG 13 shows a straight version of the water pressure driven circular shaver with beard cutter, speed control and clean out system like on page 2.

FIG 5 **page 2** shows the same turbine(29) driven shaver with beard trimmer(33). Turbine rotates the the slanted rotating driving disk(36), moves cam follower(37) up and down which oscillates the moving cutting blade(33). When beard trimming is desired, blades are rotated outward 90 degree, stationary blade(42) is locked into the cutting position by leaf springs (38).

Page 4 FIG 10 shows nose hair trimmer with a vertical worm gear type turbine(57).

FIG 11 diverter provides the water under pressure at barbed connector (20) to the nose hair trimmer (61 to the on off switch valve(62), in A position it rotates the turbine blades (57) which drives the shaft (52)with blades (49). Valve (71) in and B position squirts water into the hair cutting area to flush out all hair.

Page 5 FIG 12 shows a flat oscillating water turbine driven shaver.

Blades (15) of the driving turbine(6) is activated by the water as it flows in at barbed connector (24), flows trough speed control valve(71) when valve is opened by knob(2).

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Brief description of the invention

Page 5 FIG 12 Turbine (6) drives cam(64) as it rotates shaver arm(69) and oscillates the curved, flat shaving blade(18) as it moves under the screen (65). Speed control on/off valve(71) controls the flow of water, push button type nozzle control(14) is to rinse out all the hair derbies.

When shaving is finished, clean out nozzle switch(14) is depressed, letting the water flow trough to flush out the hair particles, dirty water exits at opening (7).

Page 6 Fig 13 shows the same flat-water turbine driven shaver with side beard trimmer (33, 34).

Spring (63) keeps beard trimmer arm (46) following cam (64) as it rotates and is pivoted at (47) and moves beard cutter blade (33) up and down.

Since no electricity or electrical driving motor is used, it is waterproof, shaver can be used dry or wet even while taking shower. Shaver has a holding ring(23) to hang it up by the sink or by the shower.

This simplified construction also reduces manufacturing costs

Page 7 FIG 13 is the straight circular shaver version of the angled FIG 5 one as it is explained earlier on

The water pressure driven circular straight wet and dry shaver(15) with side beard trimmer (33,34) in open position, with clean out nozzle(10), driving turbine(29), speed control valve (62) turbine shaft(11).

This drawing shows a common “electric” shaver type embodiment, but this design is completely non electrical, water proof, water resistant, submergible, has speed control, and water flushing clean out.

Since no electricity or electrical driving motor is used, it is waterproof, shaver can be used dry or wet even while taking shower. Shaver has a holding ring (23) to hang it up by the sink or by the shower.

Page 8 FIG 15 shows Water pressure Driven Massager(78) vertically positioned miniature water turbine (57) with valve / speed control(62) water injector valve(14) and detachable, replaceable vibrator / massager head(75). In respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or as it is illustrated in the drawings.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Inventor: Zoltan Egeresi, Santa Cruz, CA

Detailed description of the invention

This invention has a unique, new way to drive the “electric” type shavers, as many prior art types are available and adaptable to be used with this invention.

The new shaver power source is a **miniature water turbine** which drives the shaver, beard or nose hair trimmer. The **water pressure driven shaver** uses the water as a “parasite” power source from the faucet in the bathroom or in the shower outlet or even in hotel rooms.

The **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean-out and Speed control** is a new way to shave, economical, waterproof, it has a water clean out built in nozzle flushing away hair cuttings.

On page 1 of the drawing FIG. 1 shows a shaver with an angled rotating blade assembly.

Water comes from the faucet from the diverter on FIG. 4. Diverter(73) is attached to the faucet by the treaded connector (18). When faucet is turned on diverter’s knob(29) turns on the water pressure and water exits at barbed connector (20). The primary water volume controller is the diverter, by partial diverter opening the reduced water volume creates a slower turbine FIG. 2 (29) rotation therefore reducing the shaver’s speed..

Water under pressure flows to the shaver trough the dual flexible hose (71) connects to barbed connector (24), pipe (13) and enters into the shaver’s water volume controller valve(62) on FIG 1 and becomes a speed control for the shaver. When speed control volume’s knob(2) is opened, washer(27) lets the water flows up to the turbine (29) trough pipe (3) and enters at connector (16). Water under pressure rotates the turbine’s blades(15), than used, clean water exits at outlet (26), barbed connector (25), outflow hose (72) to diverter (73) barbed outflow connector (21), out to sink at (22), reusable clean water.

When the turbine(29) is rotating shaft (11) with gears(6) transfer the rotational force to spin the circular blades(9). Rotating shaft is held in place by spacers (5), shaft guide or bearings (11), gear ratio of coupling gears(6) selects predetermined shaver speed.

A Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Inventor: Zoltan Egeresi, Santa Cruz, CA

Detailed description of the invention

Normally closed push button valve on FIG 3 (14) is closed by spring(30), when activated by depressing button (31) valve cylinder (17) moves down to let the water flow up in pipe (13) to nozzle(10) than water flushes out the hair particles with nozzle(10), derbies flow out at top opening(7) or if shaver is hanging on it's hook(23) any excessive water can drip out at the bottom opening(7).

Inter chamber opening (4) let any water left in chambers to drip out.

Page 2 FIG 5 and **page 3** FIG 6, and 7 show the same **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean-out and Speed control** with beard trimmer (33) in active position.

Turbine rotates the slanted rotating driving disk(36), it moves cam follower(37) up and down which oscillates the moving cutting blade(33). Cutting blades oscillating(33) and stationary (42) are tightly connected together (but movable) by rivets(41). When beard trimming is desired, blades are rotated outward 90 degree, stationary blade(42) which is locked into the cutting position by the leaf springs(38) which is indented in the middle and attached to the body of the shaver(1), it is 90 degree offset compared to the beard cutting stationary blade(42), than gets locked into the cutting position by leaf springs (38).

Stationary blade(42) is closer to the body(1) of the shaver and in open position leaf spring (38) holds it in position while rivets(41) are loose enough to allow oscillating motion of blade(33). Blade(33) is attached to the body(1) by pins (40) loosely fitting in metal tube(43) on hinge(32) to allow up and down motion.

When beard trimmer is not in action, as shown on FIG 6, cam follower(37) is moved away from the rotating cam(36), in active position by pivoting the cutter assembly as shown on FIG 5 cam follower(37) is moved above the slanted cam surface(36) and pushed down by spring (37). Cam follower is pivoted by pin (34) which is attached to the body at location (47). Elongated slot(34) in cam follower (37) allows the extra horizontal motion when beard trimmer moves from closed to open position. Cam follower is attached to the movable trimmer(33) by pin (63).

A Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Inventor: Zoltan Egeresi, Santa Cruz, CA

Detailed description of the invention

Page 4 FIG 10 shows a **Water Pressure Driven Wet and Dry Nose Hair Trimmer with Water Clean-out and with Speed control.**

This version of the Water turbine driven shaving apparatus(61) is a vertical, worm gear type(57) as shown on the drawing on FIG 9 and 10 in a different embodiment of the invention (electric tooth brush type). Diverter(73) supplies the water pressure as it comes in at barbed connector (20), dual hose supply side(71) nose hair trimmer with a vertical worm gear type turbine(57).

Water enters at barbed connector (24) into the water valve(62) which has three positions, OFF, A, and B. Water valve on FIG 14 has a rotating inner cylinder with a hole in the center for the water to enter at inlet(28) than water leaves trough an angled outlet A or B.

When Knob(29) is on in A position, it allows the water to flow in tube(59) than at connector(73) into vertical turbine (57) and rotates the worm gear type blade(56), than the de-energized water leaves at connector(74), barbed connector(25), return water line(72), barbed connector (21) and out at (22).

Turbine(57) is supported at two location by anchoring posts(58).

When the turbine is rotating shaft(55) drives the nose hair cutter driving shaft(52) in the detachable nose hair cutting assembly(51). Rotating shaft(52) is supported by spacer(12) and on the top it rotates an inverted U shaped blade (adaptable to prior art electric nose hair cutter blade assembly) .

Valve (62) in and B position squirts water into the hair cutting area as it flows up on tube(60) and exist at nozzle(10) to flush out all hair. Flushing water leaves at opening(7). This water pressure driven nose hair cutter is totally waterproof, submersible with a built in flush away system.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Inventor: Zoltan Egeresi, Santa Cruz, CA

Detailed description of the invention

Page 5 FIG 12 shows a flat oscillating **Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control**(39).

Water under pressure enters from the diverter(73) FIG 11 at barbed connector (24) and enters in valve(71) A/B/OFF which provides more of a fixed speed, by rotating valve(28) on FIG 5 page 14, provides a narrower range of speed control as it allows completely or partially open the valve at A or B.

On FIG 12 when the water valve(2) is open, turbine(6) blades(15) start rotating with and attached oval cam (64), oscillates cam follower(69) which held close to the cam by spring(63).

Speed control valve(71) when valve is opened by knob(2) turbine (15) drives cam(64), it moves shaver arm(69) and vibrates cutting blade assembly(18).

Spring(63) keeps tension on the shaver arm. Oscillating shaving arm(69) is pivoted at pivoting post(66) attached at the top by pin(67), fitting into the lower part of oscillating shaver blade assembly(18) against fixed position shaving screen(65) for cutting facial hair.

When shaving is finished, clean out nozzle switch(14) is depressed, letting the water flow through to flush out the hair particles with nozzle(10), dirty water with hair cuttings flow out at opening (7).

Page 6 Fig 13 shows the same flat water turbine driven shaver with side beard trimmer (33, 34).

Spring(63) keeps beard trimmer arm (46) following cam(64) as it rotates and is pivoted at (47) and moves beard cutter blade (33) up and down.

When beard trimming is desired as shown on FIG 13. blades are rotated outward 90 degree, stationary blades(42) is locked into the cutting position by the leaf springs(38) which is indented in the middle.

Vibrating blade(33) is loosely attached to the body of the shaver(39) with hinges (32) which slides up and down around the pin(40) in the metal guiding tube(43).

The edge of the stationary blade(42) sits in the indented leaf spring(38) during trimming.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control

Inventor: Zoltan Egeresi, Santa Cruz, CA

Detailed description of the invention

Stationary blade(42) is closer to the body(1) of the shaver and in open position leaf spring (38) holds it in position while rivets(41) are loose enough to allow oscillating motion of blade(33).

Blade(42) is attached to the body(39) by hinges(32) with pins (40) loosely fitting in metal tube(43) to allow up and down motion.

When beard trimmer is not in action, beard cutting assembly(33, 42) is folded flat against the body (39) of the shaver. Just below the tip of the cam follower(46) attached to blade(42) is the sloped cam lifter(74).

Cam lifter(74) in closed position lifts up the end of the cam follower(64) just enough, to disengage it from the driving cam(64).

Page 7 FIG 13 is the straight circular shaver version of the angled one as it is explained earlier on page 11 FIG 5. On page 7 of the drawings is the water pressure driven circular straight wet and dry shaver(15) with side beard trimmer (33,34) in open position, with clean out nozzle(10), driving turbine(29), speed control valve (62) turbine shaft(11)

This drawing shows a common “electric” shaver type embodiment, but this design is completely non electrical, water proof, water resistant, submergible, has speed control, and water flushing clean out.

Since no electricity or electrical driving motor is used, it is waterproof, shaver can be used dry or wet even while taking shower. Shaver has a holding ring (23) to hang it up by the sink or by the shower.

Water Pressure Driven Wet and Dry Shaver with Beard Trimmer, Water Clean out, and Speed Control - Water Pressure Driven Massager

Inventor: Zoltan Egeresi, Santa Cruz, CA

Detailed description of the invention

Page 8 FIG 15 shows the **Water Pressure Driven Massager(78)** with vertically positioned miniature water turbine (57) with valve / speed control(62) water injector valve(14) and detachable, replaceable vibrator / massager head(75). Water under pressure comes from diverter(73), out on barbed connector (20), flexible hose (71) usually a ¼ inch connects to input barbed connector (24) of massager(78). Water enters into the valve(62), by turning valve knob (2) to the open position it allows water to flow to the turbine(57) at connection (3) to rotate vertical turbine blade(56) than water exist in tube(79), barbed connector(25), return line(72), connector(21) than to sink outlet (22). Diverter can also be connected to the shower. Massager head assembly(75) is connected to the massager's main assembly(78) by threaded connection(54), than connects turbine shaft(55) to vibrator shaft(52) -supported by bearings (12)- which rotates an eccentric plate(80) to create the vibrating, massaging effect. On top of massager head(75) cover(76) is bumpy surfaced, replaceable and it has 1-5 openings(7) where water at preset temperature flows out after valve(14) is depressed by push button(31). Massager head assembly (75) when connected to the main assembly turning the threaded sleeve(53), in secured position washer (77) on FIG 16 holds the water line together without any leak. FIG 17 shows a different massaging head connectable by threads(54). In respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or as it is illustrated in the drawings.